

Amendments to the Claims

1-4. (Canceled)

5. (Currently Amended) [The device of claim 4] A switching device comprising a macrocyclic molecule arrangement in at least one of a substantially one dimensional stack arrangement or a two dimensional arrangement, said arrangement being adsorbed on a substrate, wherein macrocyclic molecules in said arrangement are metallated, wherein the metallated macrocyclic molecules include one or more metals selected from the group cobalt, iron, copper, nickel, silver, gold, palladium, platinum, aluminum.

6-7. (Canceled)

8. (Currently Amended) [The apparatus of claim 7] An information storage and retrieval apparatus comprising a memory device comprising a macrocyclic molecule arrangement in at least one of a substantially one dimensional stack arrangement or a two dimensional arrangement, said arrangement being adsorbed on a substrate,

an input to apply optical or electrical input, and a detector to detect the output or response from the memory device, said detector comprising a nuclear magnetic resonance device.

9. (Canceled)

10. (Currently Amended) [The apparatus of claim 7] An information storage and retrieval apparatus comprising a memory device comprising a macrocyclic molecule arrangement in at least one of a substantially one dimensional stack arrangement or a two dimensional arrangement, said arrangement being adsorbed on a substrate,

an input to apply optical or electrical input, and a detector to detect the output or response from the memory device, said detector comprising a tunneling microscope.

11-12. (Canceled).

13. (Currently Amended) [The switching device of claim 11] A reversible quantum switch with multiple outputs, comprising a switching device comprising a macrocyclic molecule arrangement in at least one of a substantially one dimensional

stack arrangement or a two dimensional arrangement, said arrangement being adsorbed on a substrate, said metallated macrocyclic molecules comprising metallo-phthalocyanine molecules.

14. (Currently Amended) [The switching device of claim 11] A reversible quantum switch with multiple outputs, comprising a switching device comprising a macrocyclic molecule arrangement in at least one of a substantially one dimensional stack arrangement or a two dimensional arrangement, said arrangement being adsorbed on a substrate, said arrangement of macrocyclic molecules comprising silicon phthalocyanine.

15-16. (Canceled)

17. (Currently Amended) [The method of claim 15] A method of obtaining multiple outputs from a switching device, comprising applying an input to an arrangement of macrocyclic molecules in at least one of a substantially one dimensional stack-like or ring-like structure or a substantially two dimensional sheet-like structure, and responding to multiple outputs, said responding comprising detecting response using nuclear magnetic resonance.

= 18. (Currently Amended) [The method of claim 15] A method of obtaining multiple outputs from a switching device, comprising applying an input to an arrangement of macrocyclic molecules in at least one of a substantially one dimensional stack-like or ring-like structure or a substantially two dimensional sheet-like structure, and responding to multiple outputs, said responding comprising detecting response using a tunneling microscope.

19. (Canceled)

20. (Currently Amended) [The device of claim 19] A molecular/quantum device, comprising a monomeric metallated phthalocyanine that behaves as a fast (< 10⁻¹² second), energy efficient (30kT/bit of information), fully reversible quantum switch with multiple outputs, wherein the monomeric phthalocyanines are organized in structural combinations of at least one of one dimensional wire-like ring-stacked, or two dimensional sheet-like ring-fused phthalocyanines, wherein the functionality of the molecular metallated phthalocyanine behaves with properties that can replace a multiplicity of CMOS and similar classic semiconductor devices.

21. (Canceled)

22. (Currently Amended) [The device of claim 1] A switching device comprising a macrocyclic molecule arrangement in at least one of a substantially one dimensional stack arrangement or a two dimensional arrangement, said arrangement being adsorbed on a substrate, wherein the phthalocyanine molecules can form basically three structural forms.

23. (Previously Presented) The device of claim 22, wherein the phthalocyanine molecule forms include monomeric molecular units or a polymeric combination as one dimensional ring-stacked "wire" like structure and two dimensional ring-fused "sheet" structures.

24. (Previously Presented) The device of claim 23, wherein each of the three basic structures can have various metals (cobalt, iron, copper, nickel, silver, gold, palladium, platinum, aluminum) in the center of the molecule.

25-27. (Canceled)

28. (Currently Amended) [The device of claim 1] A switching device comprising a macrocyclic molecule arrangement in at least one of a substantially one dimensional stack arrangement or a two dimensional arrangement, said arrangement being adsorbed on a substrate, comprising ring-stacked silicon phthalocyanine with a base on the order of 1 x 1 nm and length which depends on the number of molecules.

29-30. (Canceled)

31. (Currently Amended) [The device of claim 1] A switching device comprising a macrocyclic molecule arrangement in at least one of a substantially one dimensional stack arrangement or a two dimensional arrangement, said arrangement being adsorbed on a substrate, wherein the two dimensional arrangement of macrocyclic molecules comprises a two dimensional arrangement of fused macrocyclic molecules.

32. (Currently Amended) [The memory device of claim 6] A memory device comprising a macrocyclic molecule arrangement in at least one of a substantially one dimensional stack arrangement or a two dimensional arrangement, said arrangement being adsorbed on a substrate, wherein the two dimensional arrangement of

macrocyclic molecules comprises a two dimensional arrangement of fused macrocyclic molecules.

33. (Currently Amended) [The method of claim 15] A method of obtaining multiple outputs from a switching device, comprising applying an input to an arrangement of macrocyclic molecules in at least one of a substantially one dimensional stack-like or ring-like structure or a substantially two dimensional sheet-like structure, and responding to multiple outputs, wherein said applying an input to an arrangement of macrocyclic molecules in a substantially two dimensional sheet-like structure comprises applying the input to a substantially two dimensional sheet-like structure of fused macrocyclic molecules.

34. (Currently Amended) [The method of claim 30] A method of making a quantum electro-optical device, comprising arranging a plurality of macrocyclic molecules in a substantially one dimensional ring-like stack or in a substantially two dimensional sheet-like arrangement, and adsorbing the same to a conductor or semiconductor substrate, wherein said arranging comprises arranging a plurality of macrocyclic molecules in a substantially two dimensional sheet-like arrangement of fused macrocyclic molecules.